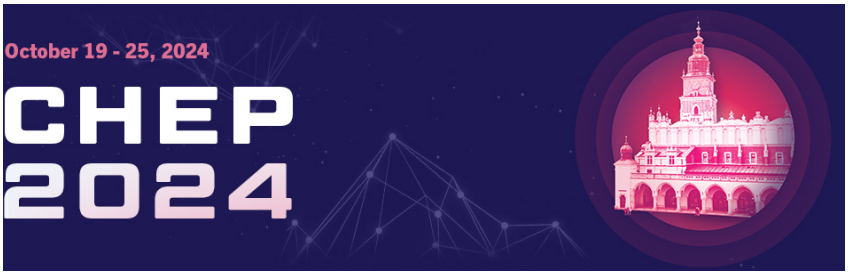

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Implementation and development of a DAQ system DELILA at ELI-NP

Monday 21 October 2024 14:42 (18 minutes)

Digital ELI-NP List-mode Acquisition (DELILA) is a data acquisition (DAQ) system for the Variable Energy GAmma (VEGA) beamline system at Extreme Light Infrastructure –Nuclear Physics (ELI-NP), Magurele, Romania [1]. ELI-NP has been implementing the VEGA beamline and entirely operate the beamline in 2026. Several different detectors/experiments (e.g. High Purity Ge (HPGe) detectors, Si detectors and scintillator detectors) will be placed at the VEGA beam line and read out by CAEN digitizers, Mesytec ADC and TDC, and some other electronics [2]. DELILA has been developed using mainly DAQ-Middleware and CAEN digitizer libraries to fit the experiments and the read-out electronics [3]. The main requirements are network transparency and synchronized time stamps. DAQ-Middleware allows us to fetch data from different electronics and computers to a data merger via Ethernet.
DELILA uses two databases to record experimental information: MongoDB for the run information and InfluxDB for event rates. DELILA uses ROOT libraries for online monitoring and recording experiment data.
The DAQ system has been used for several experiments at IFIN-HH 9MV and 3MV tandem beamlines in Romania [4]. The presenter will present the implementation and results of DELILA.

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[3] Y. Yasu et al., J. Phys.: Conf. Ser. 219 022025 (2010)
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